

WHAT IS CLAIMED IS:

- 1 1. An airborne radar system, comprising:
2 a radar antenna;
3 radar circuitry coupled to the radar antenna;
4 a runway database comprising runway location information;
5 a processing device retrieving from the runway database, runway
6 location information for a runway being approached by an aircraft, based on the
7 location of the aircraft, and directing a radar beam defined by a polygon which
8 represents the runway and which is derived from the runway information, the
9 processing device determining whether there are any obstacles on the runway.
- 1 2. The airborne radar system of claim 1, wherein the location of the
2 aircraft is provided using a position sensor in communication with the processing
3 system.
- 1 3. The airborne radar system of claim 1, wherein the polygon is
2 defined by latitude and longitude.
- 1 4. The airborne radar system of claim 1, wherein the runway database
2 is on board the aircraft.
- 1 5. The airborne radar system of claim 1, wherein the radar beam is a
2 beam sharpened compressed radar.
- 1 6. The airborne radar system of claim 1, wherein the processing
2 device determines the direction of the radar beam based on the location of the
3 polygon.
- 1 7. An airborne sensing system, comprising:
2 a sensing device for sensing objects outside of an aircraft;

3 a runway database comprising runway location information;
4 a processing device retrieving from the runway database, runway
5 location information for a runway being approached by an aircraft, based on the
6 location of the aircraft, registering, the runway location using the sensing device
7 based signal and the runway location information from the database, and
8 directing a radar beam defined by a polygon which represents the runway and
9 which is derived from the runway information, the processing device determining
10 whether there are any obstacles on the runway.

1 8. The airborne sensing system of claim 7, wherein the sensing
2 device comprises a synthetic vision device.

1 9. The airborne sensing system of claim 7, wherein the sensing
2 device comprises a millimeter wave sensing device.

1 10. The airborne sensing system of claim 7, wherein the location of the
2 aircraft is provided using a position sensor in communication with the processing
3 system.

1 11. The airborne sensing system of claim 7, wherein the polygon is
2 defined by latitude and longitude.

1 12. The airborne sensing system of claim 7, wherein the runway
2 database is on board the aircraft.

1 13. The airborne sensing system of claim 7, wherein the radar beam is
2 a beam sharpened compressed radar.

1 14. The airborne sensing system of claim 7, wherein the processing
2 device determines the direction of the radar beam based on the location of the
3 polygon.

1 15. A method of detecting an obstacle on a runway, comprising:
2 retrieving location information relating to the location of an aircraft;
3 retrieving, based on the location information, data representative of
4 the location of the runway;
5 registering, the runway location using a radar based signal and the
6 data;
7 sensing within the perimeter of the runway location, the presence of
8 an obstacle.

1 16. The method of claim 15, further comprising:
2 determining the location of the obstacle within the perimeter of the
3 runway location.

1 17. The method of claim 15, further comprising:
2 communicating the presence of an obstacle to a pilot of the aircraft.

1 18. The method of claim 15, further comprising:
2 providing an audio alert to the pilot of the aircraft.

1 19. The method of claim 15, further comprising:
2 directing a beam sharpened radar at the runway location.

1 20. The method of claim 15, wherein the perimeter of the runway
2 location is defined by a polygon.